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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,738	07/19/2000	Victor B. Sapozhnikov	I69.12-0432	2615

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EXAMINER

LAVILLA, MICHAEL E

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 12/11/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,738

Applicant(s)

SAPOZHNIKOV, VICTOR B.

Examiner

Michael La Villa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:
2. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
3. Claims 21-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding Claims 21, 27, and 35, the amended claims make reference to the presence of "mounds and valleys" structure. The Specification refers to this structure in the context of two atomic components that form a plurality of atomic layers that are deposited on planar surfaces, wherein the deposition of two components is performed in opposite directions. See Figures 1-6 and page 3, line 25 through page 7, line 11 in the Specification, which, respectively, depict and discuss applicant's simulations that result in the "mounds and valleys" structure. The presence of mounds and valleys in the claimed context where the conditions are otherwise than stated above does not appear to be taught in the originally filed Specification. Claim 21 omits all of these requirements. Claim 27 omits all of the requirements except that it demands two components. Claim 35 omits all of the requirements except that it demands two components deposited

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in opposite directions. The requirement that the deposition should be obtained for atomic components forming atomic layers is bolstered by applicant's comment at page 13, lines 2-3 of the Response, where applicant, in characterizing the claimed invention, explains that modulations are achieved on the atomic scale.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
5. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - I. Regarding Claim 37, it is unclear what is meant by the designated negative angles. Applicant has explained that angles cannot be negative at page 10, third paragraph of the Response. Hence, it is unclear what is being claimed. Is this a redundant specification of opposite deposition directions?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
8. A person shall be entitled to a patent unless –
9. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 21-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Chambliss et al. USP 5,858,455 for the reasons of record in the Office Action mailed on 29 July 2003.

Response to Amendment

- I. In view of applicant's amendments and arguments, applicant traverses the section 112, first paragraph rejection of the Office Action mailed on 29 July 2003. Rejection is withdrawn.
- II. In view of applicant's amendments and arguments, applicant traverses the section 112, second paragraph rejection of the Office Action mailed on 29 July 2003. Rejection is withdrawn.
- III. In view of applicant's amendments and arguments, applicant traverses the objection to the Specification of the Office Action mailed on 29 July 2003. Objection is withdrawn.
- IV. In view of applicant's amendments and arguments, applicant traverses both of the section 102 rejections over Applicant's Admissions of the Office Action mailed on 29 July 2003. Rejections are withdrawn since the claimed uneven surface topography is not taught or suggested.
- V. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Mirecki of the Office Action mailed on 29 July 2003. Rejection is withdrawn since the claimed uneven surface topography is not taught or suggested.

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- VI. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Bertero of the Office Action mailed on 29 July 2003. Rejection is withdrawn since the claimed uneven surface topography is not taught or suggested.
- VII. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Chambliss of the Office Action mailed on 29 July 2003. Figures 8A and 8B depict mounds and valleys as claimed. The depicted deposition directions are opposite in Figure 5, which Chambliss describes as schematic. Applicant explains that the deposition angle is not oblique, but the claims do not all demand oblique deposition angles. Moreover, applicant has not demonstrated that layers formed by oblique deposition or any other claimed process limitation are necessarily structurally different from those of Chambliss. Applicant argues that Chambliss's layers result from a self-assembly process, which is not claimed. However, applicant's claims do not preclude a self-assembly process. Moreover, even if Chambliss can only be said to form a self-assembled layer, the layer as described by Chambliss would be expected to be indistinguishable from those claimed. The claimed mound and valley structure formed from two atomic components is apparent in Figures 6-8. Where there is a substantially similar product, the burden of proof is shifted to establish that applicant's product is patentably distinct; the burden is not on the

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examiner to demonstrate identity of process of making. See In re Brown, 173 USPQ 685 and In re Fessmann, 180 USPQ 324.

Moreover, PTO can require applicant's to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are substantially identical or produced by substantially identical processes. This result obtains due to the PTO's inability to obtain and compare prior art products. See In re Best, Bolton, and Shaw, 195 USPQ 431 (CCPA 1977). Hence, rejection is appropriate.

VIII. In view of applicant's amendments and arguments, applicant traverses the section 102 rejection over Iwatsuka of the Office Action mailed on 29 July 2003. Rejection is withdrawn since the claimed plurality of layers having an uneven surface topography is not taught or suggested.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
12. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (703) 308-4428. The examiner can normally be reached on Monday through Friday.
14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.
15. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael La Villa
December 10, 2003

